

Application No.: 10/672,460

Response dated: January 9, 2006

Reply to Office Action of September 9, 2005



Listing of the Specification Amendments:

Please amend the paragraph at page 1, line 2 and Line 3 as shown below:

U.S. PATENT APPLICATION

Pentair, Inc.

~~TITLE OF THE INVENTION~~

CHOPPING PUMP IMPELLER ASSEMBLY

RELATED APPLICATIONS

Please amend the paragraph at page 7, line 8, line 20, and line 25 as shown below:

FIG. 1 is a partial cutaway view of a pump 10 according to an embodiment of the present invention. The pump 10 can be fabricated as a new pump, fabricated by retrofitting an impeller assembly 12 according to the present invention into a recessed impeller pump, and can be formed in any other manner without departing from the scope of the present invention. As shown in Figure 1, the pump 10 comprises a pump housing 16 that encloses a pumping chamber 19, an inlet flange 22 and an outlet flange 25 provided to the pump housing 16, and a drive shaft 28 that extends from the pump housing to be operatively coupled to a pump driving device such as a motor, turbine, and any other prime mover (not shown). Fluid is introduced into the pumping chamber 19 at a first pressure through the inlet flange 22. Objects such as solid debris entrained in the fluid being introduced into the pumping chamber 19 are chopped by rotation of an impeller 32 adjacent to a cutter bar 62 provided adjacent to the inlet flange 22. Within the pumping chamber 19, the rotating impeller 32 imparts a centrifugal force on the fluid, thereby creating a spiraling flow pattern in the form of a vortex. At least a portion of the fluid in the pumping chamber 19 is directed generally toward the impeller 32 and the cutter bar 62 to minimize the size of objects within the pumping chamber 19. The vortex flow pattern causes the remaining

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portion of the fluid in the pumping chamber 19 to be discharged at a second pressure from the pump 10 through the outlet flange 25.

Figure 2 is a cross-sectional view of the pump 10 equipped with the impeller assembly 12 in accordance with the present invention. Pump housing 16 includes the inlet flange 22 coupled to a base portion 35, the inlet flange 22 and the base portion 35 being separated by an annular spacer 42. Outlet flange 25 defines a generally tubular interior passage 45 in the spacer 42 through which the fluid is to be discharged from the pumping chamber 19. A plurality of threaded fasteners 48 cooperate with the inlet flange 22, base portion 35, and the spacer 42 to couple those objects together. Fastening devices such as clamps, rivets, and other releasable fasteners can be used with, or in lieu of, the threaded fasteners 48 to couple the portions of the pump housing 16 together without departing from the scope of the present invention. Gaskets (not shown) are disposed at the interfaces of the inlet flange 22, base portion 35, and the spacer 42 to minimize the amount of fluid that can leak there between.